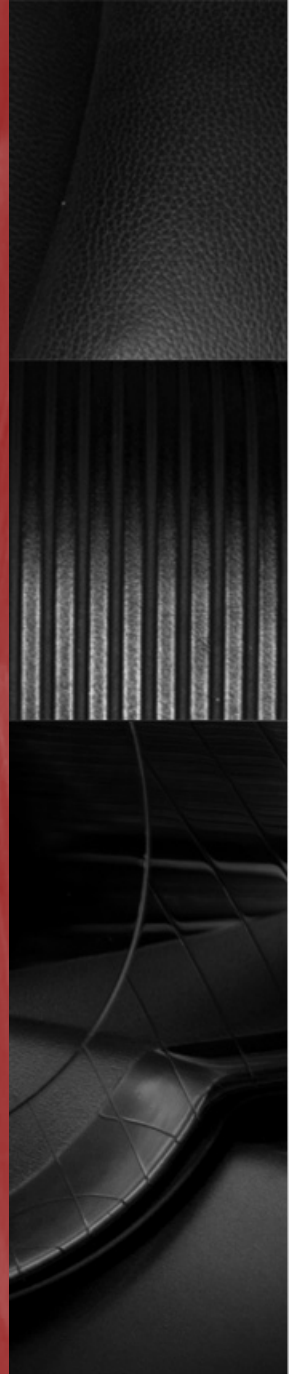


Conditional Statements

Computer Programming I

Introduction to Aerospace





What is a Conditional Statement?

- When something in the computer program depends on something else
 - When you have to make a decision and do one thing or another
 - When you have to wait until something happens
- Example – A game of Tag
 - Someone is It
 - You move about until It touches you
 - When It touches you, you freeze
 - When everyone is touched, the game ends
- Create an algorithm for It
- Create an algorithm for one of the players



Conditional Statements in Scratch

- Control commands in scripts

- Forever loop

- This command will surround other commands, such that they will repeat forever.

- Repeat

- This command will also surround other commands, and will repeat a certain number of times

- Forever If

- If a certain condition is met (this goes in the hexagon space in the command), then the commands inside will repeat forever

- If

- If a condition is met, then what's inside the If statement will be executed. If not, the program continues on.

- If / Else

- Like If, if a condition is met, then what's inside the If statement will be executed. If not, what's inside the Else statement will be executed.



Conditional Statements in Scratch

- Control commands in scripts

- Wait

- Specifies a time in seconds (or fractions of seconds) that the program will wait

- Wait until

- The program will wait until a specific action takes place

- Repeat until

- What's inside the command will be repeated until a certain action takes place

- Stop Script

- Stops just this script

- Stop all

- Stops all scripts.



Conditional Statements in Scratch

- Sensing – What goes inside the hexagons in the commands
 - Key pressed – Action is a key press (can select which key)
 - Touching – Action is when the Sprite touches the mouse-pointer, the screen edge, or another Sprite (can select which Sprite)
 - Touching color – Action is when the Sprite touches a particular color
 - Color touching color – Action is when a certain color touches another certain color
 - We'll discuss the other commands later



Conditional Statements in Scratch

- Waking up example II
 - In bed
 - Wait until Sun rises
 - Go back to sleep
 - If the rays of the sun hit your face, then sit up
 - Repeat 20 times – sit up and lay down
 - Walk to door of room
 - If door is unlocked then go back to bed, if it is open, go through door
 - End program
- Create an algorithm
- Create a Scratch program



Conditional Statements in Scratch project

- Create an animation that demonstrates the operation of the Wright flyer
- Produce algorithm flow charts for your programs
- Show the following in your animation
 - Wing Warping
 - Elevation control
 - Power
 - Rudder control
 - Orville and Wilbur
 - Takeoff
 - Landing
- In a separate animation, show how things could have gone wrong